

### REMARKS

In the Office Action dated 10 June 2005, claims 1-16 were pending and 1-11 and 13-16 were rejected and claim 12 was objected to. By way of this amendment, claims 1, 8, 11, and 16 are amended. No new matter has been introduced by way of these amendments. Reconsideration of the rejections and objections and further examination of the application is respectfully requested.

An obvious error has been amended in the specification.

The applicants have amended the independent claims 1 and 16 so as to clarify the scope of the invention, and, more specifically, clarify the nature of the propagator. With respect to the claim rejections under 35 USC § 112, claims 8 and 11 were amended.

With respect to claims 1, 3-8, 10, 14, and 16 being rejected under 35 USC § 102 as anticipated by Trampert, the amended claims now include a limitation to a P-SV propagator.

With respect to claims being rejected under 35 USC § 103(a) as being unpatentable over Trampert in view of various documents, the following observations are submitted.

The step from going from the SH propagator as disclosed in Trampert to the P-SV propagator is not obvious to a person skilled in the art. That is even though some representation of the P-SV propagator were known as such. The mere knowledge of the P-SV propagator in its theoretical form is not sufficient to exploit it for practical seismic measurements. There is no indication in Ivansson, which uses propagators to examine the dispersion of waves, as to how the P-SV propagator could be used for seismic measurements. Likewise there is no indication in Aki, which shows the propagators as such, as to how the P-SV propagator could be used for seismic measurements.

When combining Trampert with Ivansson or Aki, the skilled person is hence confronted not with a solution, as the Examiner implies, but rather with a difficult scientific challenge, for which there was no solution available until the work of the present co-inventors.

Applicant would like to point out that 10 years lapsed between the publication of Trampert, stating a solution of the SH propagator, and the present invention. Both Aki and Trampert explicitly refer to the propagator theory of Gilbert and Backus dating back to 1966. In

other words, the prior art cited by the examiner was readily available to those skilled in the art for at least the past 10 years. This is a clearly supportive of an argument that, from the perspective of a person skilled in the art, the combination of Trampert and Aki (or Ivansson) does not render the present invention obvious.

Further it appears worth noting that in the meantime two papers by the co-inventors on the method of the present invention have been published in peer-reviewed journals. This underlines the fact that the scientific community has accepted the present invention as representing novel and original work. The publications are

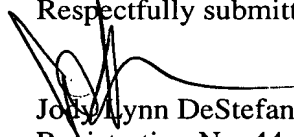
- 1.R. van Vossen, A. Curtis and J. Trampert 2005. Subsonic near-surface P velocity and low S velocity observations using propagator inversion. *Geophysics*, 70(4), pages R15-R23; and
- 2.R. van Vossen, J. Trampert and A. Curtis 2003. Propagator and wave-equation inversion for near-receiver Earth properties. *Geophys. J. Int.*, 157, 796-812.

Both documents can be downloaded, if desired, from the internet using the web address [www.geos.ed.ac.uk/contacts/homes/acurtis/](http://www.geos.ed.ac.uk/contacts/homes/acurtis/).

In light of the above amendments and remarks, Applicants believe that the present application and claims 1-16 as amended are in proper condition for allowance. Such allowance is earnestly requested. If the Examiner is contemplating any action other than allowance of all pending claims, the Examiner is urged to contact Applicant's representative, Jody Lynn DeStefanis, at (203) 431-5505.

In the event that a fee or refund is due in connection with this Amendment, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No 19-0615.

Respectfully submitted,



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